

REMARKS

Claim 11 stands objected to due to a stated informality. Applicants have amended claim 11 as suggested by the Examiner, and respectfully request that the objection be withdrawn.

Claims 1-2 stand rejected under 35 U.S.C. § 103(a) as being obvious over Dines. Applicants respectfully traverse the rejection for at least the reason that Dines fails to disclose or suggest at least an actuator operatively connected to each of a plurality of probes for selectively raising or lowering the tip of each of the probes in a direction substantially perpendicular to the surface of the substrate, as claimed.

To support the rejection, the Office Action cites parts 72-1, 72-2, and 74 in FIG. 3 as showing such actuators, but these cited parts move an array probe 32 as a whole, and do not move individual probes. Furthermore, in operation only one of the actuators, 72-1, 72-2, or 74, will move the array probe 32 in a perpendicular direction with respect to a surface at any particular time. Thus, Dines does not appear to disclose an apparatus having a plurality of second actuators for selectively moving the probes in a substantially perpendicular direction, as defined in claim 1.

Additionally, Dines fails to teach or suggest an apparatus for forming a pattern on a surface of a substrate. Dines is directed to a combined ultrasound and x-ray imaging system. This system does not form a pattern on a substrate, but instead it constructs a three-dimensional view of an object. Nothing in Dines appears to be related to forming a pattern

on a substrate. Accordingly, Applicants respectfully submit that one skilled in the art would not look to Dines for a teaching directed to forming a pattern on a surface of a substrate.

For at least these reasons, Applicants respectfully submit that claims 1-2 are allowable over the references of record, including Dines. Applicants thus respectfully request reconsideration and withdrawal of the rejection.

Claims 3-9 stand rejected under 35 U.S.C. § 103(a) as being obvious over Dines in view of Mirken. Applicants have amended claim 3 to define that the at least another of the plurality of probes remains in contact with the substrate. This amendment is submitted not in response to the rejection, but for clarity. As applied to the claims as amended, Applicants respectfully traverse the rejection for at least the reason that Dines and Mirken, alone and in combination, fail to teach or suggest a substrate having a pattern produced by at least selectively actuating at least one of a plurality of probes to place the probes in one of in contact and out of contact with the substrate.

As submitted above, the apparatus 20 of Dines is directed to medical imaging, and is not directed to a pattern on a substrate of a patterning compound. Dines does not appear to disclose or suggest patterning a compound, and Applicants thus submit that one skilled in the art would not be motivated to combine the apparatus of Dines with Mirken or any other patterning-related disclosure. Further, as also submitted above, Dines teaches moving an entire probe array using its actuators, but does not appear to teach or suggest selectively actuating individual probes. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection.

Claims 11-12 stand rejected under 35 U.S.C. § 103(a) as being obvious over Adderton. Claims 13-14 stand rejected as being obvious over Adderton in view of Massie. Applicants respectfully traverse the rejections, as neither Adderton nor Massie appears to teach or suggest at least an actuator that selectively actuates each of the AFM probes.

Adderton shows in FIG. 5 a parallel probe array 92 including three differential measurement cantilever beams 94, 96, 98, and two reference cantilever beams 100, 102. A position actuator 140, 142, shown in FIG. 6, is used to align the array with a sample surface 138. However, no teaching is provided for selectively actuating a plurality of probes for applying a patterning compound, as claimed.


Further, the probes shown in Adderton apparently are not for patterning a compound at all, but instead are directed to differential force measurement. Also, because of this, Adderton appears to teach away from selective actuation, as such actuation would apparently alter the results from the probe array. Additionally, actuators 140 and 142 are clearly directed to moving the entire chip 136 with respect to the substrate 138, and nothing in Adderton appears to disclose selectively moving individual probes.

Still further, the Office Action suggests that selectively actuating a plurality of scanning probe microscope instrument probes would be an obvious variation in design, for reducing time, for example. Applicants respectfully traverse this suggestion, and submit that one skilled in the art would not have found it obvious to selectively actuate individual scanning probe microscope probes in a probe array for nanolithography, without the benefit of impermissible hindsight.

For at least these reasons, Applicants respectfully submit that claims 11-14 are allowable over the references of record, including Adderton and Massie. Applicants thus request reconsideration and withdrawal of the rejection.

For at least the foregoing reasons, Applicants believe that this case is in condition for allowance, which is respectfully requested. The Examiner should call Applicants' attorney if an interview would expedite prosecution.

Respectfully submitted,
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